

What is claimed is:

1. A catalyst for the preparation of chloroform and chlorinated paraffins from carbon tetrachloride and paraffins, said catalyst comprising a complex of copper compound and nitrogen-containing organic compound present in a liquid phase base, wherein:

said copper compound is selected from the group consisting of a copper(I) salt and a copper(II) salt;

said nitrogen-containing organic compound is selected from the group consisting of a tertiary ammonium salt, an amino acid, an amide, an alkanolamine, urea, and derivatives thereof;

said liquid phase base is selected from the group consisting of an alcohol, a hydroxyl-containing organic compound, and water; and

wherein said catalyst comprises approximately 1.5–4.0% by weight copper compound and approximately 30.0–50.0% by weight nitrogen-containing organic compound with a remainder comprising liquid phase base.

2. The catalyst according to claim 1, wherein said nitrogen-containing organic compound is a quaternary ammonium salt of the formula  $[NR^1R^2R^3R^4]^+ X^-$ , wherein said  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$  are functional groups selected from the group consisting of alkyls, arylalkyls, cycloalkyls, and hydroxyalkyls.

3. The catalyst according to claim 2, wherein said  $X^-$  is an ion selected from the group consisting of chloride, bromide, and alcoholate.

4. The catalyst according to claim 1, wherein said nitrogen-containing organic compound is an amino acid selected from the group consisting of threonine, asparagine, hydroxyproline, betaine, cysteine, and serine.

5. The catalyst according to claim 1, wherein said nitrogen-containing organic compound is an amide selected from the group consisting of formamide, acetamide, dimethyl formamide, dimethylacetamide, caprolactam.

6. The catalyst according to claim 1, wherein said nitrogen-containing organic compound is urea.
7. The catalyst according to claim 1, wherein said nitrogen-containing organic compound is an alkanolamine selected from the group consisting of ethanolamine, di-ethanolamine, triethanolamine, hydroxides of ethanolamines, and di-(2-hydroxyethyl)dodecylamine.
8. The catalyst according to claim 1, wherein said catalyst comprises 30.0–50.0% by weight of a mixture of at least two nitrogen-containing organic compounds.
9. The catalyst according to claim 1, wherein said liquid phase base is an alcohol selected from the group consisting of methanol, ethanol, and isopropanol.
10. The catalyst according to claim 1, wherein said liquid phase base is an aromatic alcohol selected from the group consisting of phenol and alkylphenol.
11. The catalyst according to claim 1, wherein said copper containing compound is selected from the group consisting of a chloride, a bromide, and an acetate.
12. The catalyst according to claim 11, wherein said copper containing compound comprises cuprous chloride or cupric chloride.
13. A process for preparation of chloroform and chlorinated paraffins, comprising hydrogenating carbon tetrachloride by one or more n-paraffins in a liquid phase at least at approximately 150°C in the presence of a catalyst, and separating chloroform product from chlorinated paraffin product, wherein said carbon tetrachloride and said paraffin are provided for hydrogenating at a molar ratio of approximately at least 1:1; wherein said catalyst is present during said hydrogenating in an amount relative to said carbon tetrachloride and said one or more paraffins equal to approximately 1-10% by volume; and wherein said catalyst comprises:  
approximately 1.5–4.0% by weight of a copper compound selected from the group consisting of a copper(I) compound and a copper(II) compound;

approximately 30.0–50.0% by weight of a nitrogen-containing organic compound selected from the group consisting of a tertiary ammonium salt, an amino acid, an amide, an alkanolamine, urea, and derivatives thereof; and

a liquid phase base selected from the group consisting of an alcohol, a hydroxyl-containing organic compound, and water.

14. The process according to claim 13, wherein said one or more n-paraffins comprises a mixture of paraffins selected from alkanes having between about 10-20 carbon atoms.

15. The process according to claim 13, wherein said hydrogenating is carried out at said temperature for approximately 3-12 hours.

16. The process according to claim 15, wherein said hydrogenating is carried out at said temperature for approximately 6-8 hours.

17. The process according to claim 16, wherein said temperature is approximately 150-170°C.

18. The process according to claim 17, wherein said carbon tetrachloride and said paraffin are provided for hydrogenating at a molar ratio of approximately between 1:1 to 2:1.

18. The process according to claim 16, wherein said carbon tetrachloride and said paraffin are provided for hydrogenating at a molar ratio of approximately between 1:1 to 2:1.

19. The process according to claim 13, wherein said carbon tetrachloride and said paraffin are provided for hydrogenating at a molar ratio of approximately between 1:1 to 2:1.

20. The process according to claim 13, wherein said nitrogen-containing organic compound is a quaternary ammonium salt of the formula  $[NR^1R^2R^3R^4]^+X^-$ , wherein said  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$  are functional groups selected from the group consisting of alkyls, arylalkyls, cycloalkyls, and hydroxyalkyls.

21. The process according to claim 20, wherein said  $X^-$  is an ion selected from the group consisting of chloride, bromide, and alcoholate.
22. The process according to claim 13, wherein said nitrogen-containing organic compound is an amino acid selected from the group consisting of threonine, asparagine, hydroxyproline, betaine, cysteine, and serine.
23. The process according to claim 13, wherein said nitrogen-containing organic compound is an amide selected from the group consisting of formamide, acetamide, dimethyl formamide, dimethylacetamide, caprolactam.
24. The process according to claim 13, wherein said nitrogen-containing organic compound is urea.
25. The process according to claim 13, wherein said nitrogen-containing organic compound is an alkanolamine selected from the group consisting of ethanolamine, di-ethanolamine, tri-ethanolamine, hydroxides of ethanolamines, and di-(2-hydroxyethyl)dodecylamine.
26. The process according to claim 13, wherein said catalyst comprises 30.0–50.0% by weight of a mixture of at least two nitrogen-containing organic compounds.
27. The process according to claim 13, wherein said liquid phase base is an alcohol selected from the group consisting of methanol, ethanol, and isopropanol.
28. The process according to claim 13, wherein said liquid phase base is an aromatic alcohol selected from the group consisting of phenol and alkylphenol.
29. The process according to claim 13, further comprising separating said chlorinated n-paraffin product according to size of paraffin.

30. The process according to claim 13, wherein said temperature is maintained at approximately 150-170°C.